

Roll No. ....

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B. E. (Fifth Semester) (CGPA)  
EXAMINATION, 2011-12

(Civil Engg. Branch)

TRANSPORTATION ENGINEERING - II

(CE-505)

Time : Three Hours

Maximum Marks : 60

Note : Attempt all questions. Assume suitable data wherever required. Draw neat sketches wherever needed.

1. Choose the correct answer. 12
- (a) Which one of the following expression gives intermediate sight distance as per IRC standards ?
- (i)  $2 \times SSD$
  - (ii)  $(SSD + OSD)/2$
  - (iii)  $(OSD - SSD)/2$
  - (iv)  $2 \times OSD$
- (b) In the cement concrete pavements, tie bars are installed in :
- (i) Expansion joints  $\rightarrow$  Dowel
  - (ii) Contraction joints
  - (iii) Warping joints
  - (iv) Longitudinal joints  $\rightarrow$  Tie bar

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- (c) Tunnels alignment is carried out by :
- (i) Surface theodolite traverse
  - (ii) Triangulation
  - (iii) Compass traverse
  - (iv) Aerial photography
- (d) Grade compensation on curve in Indian Railway for BG is :
- (i) 0.40% per degree of curve
  - (ii) 0.06% per degree of curve
  - (iii) 0.04% per degree of curve
  - (iv) 0.02% per degree of curve
- (e) What is the value of the steepest gradient to be provided on a  $2^\circ$  curve for BG line having ruling gradient of 1 in 200 ?
- (i) 1 in 238
  - (ii) 1 in 227
  - (iii) 1 in 202
  - (iv) 1 in 198
- (f) What is the value of width of carriage way for two lane road without kerbs ?
- (i) 3.75 m
  - (ii) 6.5 m
  - (iii) 7.0 m
  - (iv) 8.5 m
2. (a) Explain the various data collected for a suitable design of Bridge.

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(b) Write short notes on the following : 5

- (i) Scour depth
- (ii) Economic span

Or

- (a) Discuss the different types of Roads Bridges with the help of neat sketches. 5
- (b) Draw a neat sketch of Abutment. Discuss the importance of different parts. 5

3. (a) Explain the advantages of piles and well foundation through the neat sketches 5
- (b) Explain the construction of Bridge under water and above water. 4

Or

- (a) Discuss the various equipments and plants used for erection of bridge. 5
- (b) Explain the various causes of failure of bridge. 4

4. (a) Discuss the process of selection of path of tunnel. 5
- (b) How shape and size of tunnel are decided? 5

Or

- (a) Explain the construction of tunnel in soft soil. 5
- (b) What is function of lining? Explain its different varieties with neat sketches. 5

5. (a) The maximum superelevation to be provided on a road curve is 1 in 15. If the rate change of superelevation is specified as 1 in 120 and the road width is 10 m. Then find the minimum length of the transition curve on either side. 5

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(b) What are the principles of highway planning? 4

Or

Explain of the following :

- (i) Superelevation 9
- (ii) Street lighting
- (iii) Camber

6. (a) Explain the types of joint in Rigid pavement. 5
- (b) Compare Flexible and Rigid pavement. 5

Or

- (a) Modulus of subgrade reaction using 30 cm dia. plate is obtained as  $200 \text{ N/cm}^3$ . Find the value of the same (in  $\text{N/cm}^3$ ) using the standard plate. 5
- (b) Write short notes on the following : 5
  - (i) Dowel bar
  - (ii) Repetition of load on pavement design

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